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# AN ASSESSMENT OF THE GROWTH OF ZEBU/CRIOLLO STEERS IN SANTA CRUZ

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In 1979 and 1980 measurements were made of the growth of Zebu/Criollo (ZC) crossbred steers grazing good quality Green Panic - Gylcine pastures. Steers of an intial weight of 188 kg gained 0.51 kg/d during the dry season in 1979, and 0.48 kg/d in the following wet season. In 1980 steers of an initial weight of 262 kg gained 0.62 kg/d in the dry period. In the 2 years respectively Green Panic - Glycine pastures produced dry season animal gains of 1.4 and 1.1 kg/ha/d. The performance of ZC steers was better than that of Brangus and Santa Gertrudis in the dry season, and equal or better during the rains. It is concluded that the ZC have greater potential for growth on good pastures.

Key words: cattle, grazing, grass/legume pastures, liveweight gain

Prior to 1979, most of the animal growth rate data available in Bolivia has been obtained using recently imported breeds such as Brangus (Paterson & Samur 1981) and Santa Gertrudis (Paterson et al 1981). A need was recognised to obtain performance data on typical local cattle.

## Materials and Methods

At the start of the 1979 dry season, a group of 10 Zebu/Criollo (ZC steers of 10 - 18 months of age were assigned to provide a comparison with contemporary Brangus animals. The animals were routinely vaccinated against endemic diseases and sprayed to control ectoparasites when heavily infested (about every 2 months). They had permanent free access to rock salt as their only supplement. Liveweights were measured at 14 day intervals after overnight fasting. The animals spent the dry season (May - October) under a set stocking regime, starting at 1.3 AU/ha (1 AU = 400 kg liveweight) in a Green Panic - Glycine paddock, but in the rains, they rotationally grazed general pastures of the farm.

At the start of the 1980 dry season, 6 ZC steers, contemporaries of the original 10 animals, were stocked on Green Panic - Glycine pastures starting at 1.2 AU/ha in June. They were kept under the same management as used in 1979.

The pastures used are fully described by Paterson and Samur (1981), but in summary consisted of the following:

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Dry Season - a paddock containing about 40% *Glycine wightii* cv. Tinaroo, 45% *Panicum maximum* cv. Petrie (Green Panic) and 15% woody shrubs and *Paspalum notatum*.

Wet Season - paddocks of *Hyparrhenia rufa*, *Panicum maximum* and *Pennisetum purpureum*, often containing varying proportions of Glycine and *Macroptilium atropurpureum* cv. Siratro.

## Results

In August 1979 one of the animals broke a leg and had to be slaughtered. A further animal was slaughtered in December due to physical injury. Despite regular vaccinations, Brangus animals suffered from foot-and-mouth disease in the second half of the 1979 dry season. The ZC steers remained healthy, having been vaccinated with a different vaccine batch number. Liveweight gains of the 8 ZC which survived the full year are noted in Table 1, together with the liveweight gains shown by Brangus animals grazing a similar Green Panic - Glycine paddock, to provide a comparison.

*Table 1:*
*Liveweight gains of Zebu/Criollo steers and Brangus bulls, means and standard deviations*

| Period | Zebu/Criollo | Brangus |
|---|---|---|
| **Dry season 1979** | | |
| Initial weight, kg May 1979 | 187.9 ± 36.67 | 180.3 ± 28.29 |
| Initial grazing pressure, AU/ha | 1.31 | 1.32 |
| LWG, kg/d May-July, 73 days | 0.51 ± 0.155 | 0.15 ± 0.104* |
| LWG, kg/d Aug-Oct, 70 days | 0.50 ± 0.104 | |
| Average LWG, kg/d 143 days | 0.51 ± 0.097 | |
| **Wet season 1979-80** | | |
| LWG, kg/d Oct-Jan, 98 days | 0.53 ± 0.156 | 0.60 ± 0.117* |
| LWG, kg/d Jan-May 129 days | 0.44 ± 0.135 | |
| Average LWG, kg/d 227 days | 0.48 ± 0.101 | |
| Average LWG kg/d 370 days | 0.49 ± 0.084 | |
| Final weight | 369.6 ± 39.11 | |

*Calculated from data of Paterson and Samur (1981) to provide a comparison of the same period

No liveweight gain data are presented for the Brangus in the period August - October 1979 due to the problem of foot-and-mouth disease. The herd was sold in January 1980 and so no data are available for the second half of the 1980 wet season.

The dry season grazing days and LWG/ha/d for the two similar paddocks are shown in Table 2.

*Table 2:*
*Dry season production per hectare, 1979*

| Period | Zebu/Criollo Grazing days/ha | Zebu/Criollo LWG/ha /d | Brangus Grazing days/ha | Brangus LWG/ha /d |
|---|---|---|---|---|
| May-July, 73 days | 221 | 1.47 | 236 | 0.42 |
| Aug-Oct, 70 days | 195 | 1.40 | 199 | |
| Total, 143 days | 416 | 1.42 | 435 | |

In 1980, the grazing period was 117 days of the dry season from June to October. From an intial weight of 262.2 ± 15.38 kg (mean ± standard deviation) the 6 ZC steers stocked initially at 1.9 AU/ha, gained 0.62 ± 0.106 kg/d, the pasture provided 213 grazing days/ha and the liveweight gain was 1.13 kg/ha/d.

## Discussion

Although the Brangus animals did not show symptoms of foot-and-mouth disease until August 1979, it is possible that their performance was adversely affected before that by an incipient health problem. The best performance to date noted at Saavedra with grazing Brangus bulls was that reported by Paterson et al (1979) for the 1977-78 period, where weaners in the 12 months from May to May grew at an average of 0.43 ± 0.041 kg/d (mean ± standard error) from an initial weight of 189.5 kg. The performance of the ZC steers compared favourably with these results, and is considerably better than the Brangus data for the 1979-80 year, even though it would be expected that entire bulls should grow faster than steers.

In the second dry season after weaning, the growth of the ZC was equal to the performance of the Brangus bulls of a similar age as measured by Paterson et al (1979). These authors found the dry season productivity of Green Panic - Glycine pastures with Brangus bulls of 8-12 and 20-24 months of age, to be 1.0 kg liveweight gain/ha/d. The 1979 measurements with ZC (1.42 kg/ha/d) is again superior to both the best, and to the contemporary Brangus production. The 1980 ZC figure of 1.1 kg/ha/d is also high, but may have been even higher if the grazing pressure had been increased to the more appropriate level of 1.3 - 1.4 AU/ha at the start of the grazing period, in order to reach a dry season average of 1.5 AU/ha.

The superiority of the ZC on similar pastures at similar stocking rates may suggest better efficiency of feed utilization rather than greater feed intake, since the two paddocks used have,in the past,shown identical carrying capacities, have similar histories and similar botanical compositions. At no time in 1979 was the ZC paddock observed to be heavier grazed than the Brangus paddocks, and at similar stocking rates,it is likely that feed intake was also similar.

In another study (Paterson et al 1981),where ZC steers were compared with Santa Gertrudis on *Hyparrhenia rufa* and *Leucaena leucocephala*, the

ZC gained faster in the dry season (0.33 vs 0.19 kg/d) while in the wet season gains were similar for the two groups (0.53 vs 0.48 kg/d).

Assuming a weaning weight of about 140 kg at 8 months, ZC steers with access to legumes during the dry season should reach 400 kg live - weight, without supplementation, at an age of about 28 months on unfertilized pastures.

The work to date has indicated the considerable growth potential of the crossbred animals in comparison with both Santa Gertrudis and Brangus, and would suggest that although the exotic breeds may have a place in cross breeding programmes, the widespread replacement of local animals by exotic beef breeds is presently both unnecessary and unwise.

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